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Chlamydial urethritis and cervicitis

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Contents

Aims

- to diagnose the disease and treat the patient in time to avoid the serious complications of prolonged or recurrent infection (pelvic inflammatory disease, infertility, ectopic pregnancy)
- to examine and treat the person who is the source of the infection and any other persons who might have been subsequently infected, in order to prevent the spread of the chlamydial infection

Epidemiology

- Young adults with many sexual contacts are especially at risk, and the use of oral contraceptives increases the likelihood of contracting the disease[1].
- Asymptomatic infections promote the spread of the disease. The time from infection to diagnosis is on average four weeks but may be up to many months [1].
- By the time of diagnosis, a quarter of patients have already had a new sexual relationship, which presents a challenge for tracing the infection.
- On the basis of extensive material, men are most commonly (60%) infected by a temporary sexual partner and women by a permanent partner[4]. Prostitutes and foreigners do not constitute a significant source of infection in most countries.

Early symptoms

- The "incubation period" from chlamydial infection to the emergence of symptoms is one to three weeks, i.e. longer than in gonorrhoea. About a quarter of men and most women experience no particular early symptoms from chlamydial infection, and many of them become asymptomatic carriers of chlamydial disease.
- In men, urethritis is marked by scant, watery (later mucous) discharge from the urethra. Other symptoms include an aching pain and dysuria. In women, there is dysuria, pollakisuria and mild leucorrhoea. Cervicitis is a relatively common finding. It is manifested as mucopurulent discharge and oedema or bleeding tendency of the orifice of the uterus.

Late symptoms and complications

- In women, prolonged chlamydial infection often results in **endometritis** and **salpingitis**. These conditions are not always associated with severe symptoms; the patient may have just slight fever or mild lower abdominal pain. Endometritis may also cause irregular uterine bleeding. **Pelvic inflammatory disease (PID)** is an important late complication of chlamydial infection; it generally requires inpatient treatment. Perihepatitis is a rare complication of chlamydial infection.
- Late complications of extensive and, especially, recurrent chlamydial infection also include tubal damage which in turn causes **infertility** and **ectopic pregnancies** [2] [3].
- In men, chlamydial infection is an important cause of **epididymitis**, whereas the etiological significance of chlamydia in prostatitis is considered small.
- Chlamydial infection can trigger the development of **reactive arthritis** (uroarthritis, Reiter´s disease) in both men and women.

Diagnostics

- **Clinical symptoms and signs**. Chlamydial infection can be suspected but never diagnosed on the basis symptoms alone. A burning sensation or mucous discharge from the urethra are common symptoms in men after unprotected sexual intercourse with a temporary partner. Although Gram or methylene blue stains of plain smear specimens are usually rich in white blood cells, chlamydia is found to be the cause of the infection in only half the patients. A reliable diagnosis of chlamydial infection in both men and women can therefore be reached only by appropriate microbiological sampling.
- **Laboratory diagnostics** has undergone a profound change in recent years. Conventional chlamydial culture has been relegated to a minor role, and immunological staining methods of poor sensitivity have been abandoned. New gene amplification methods have replaced previous techniques, and first-void urine samples have acquired an established position in chlamydial diagnostics in both men and women.
- **Gene amplification methods**, such as polymerase chain reaction (PCR) and ligase chain reaction (LCR), are based on multiplication of chlamydial nucleic acids with specific probes. The main assets of the methods are their high sensitivity and the fact that they, unlike, culture methods, yield a positive result also when there are no living chlamydia in the sample. Compared with traditional culture methods, gene amplification methods reveal 5 - 7% more cases of chlamydial infection, and false positives are practically nonexistent[4] [5]. The price of these tests has come down to an acceptable level. Today chlamydia and gonorrhoea can be analysed on the same sample if required.

- **First-void urine samples** are used for chlamydial diagnostics in both men and women. Samples are taken when at least five to seven days have passed since the potential time of acquirement of infection. The patient has to refrain from voiding for 2 h before urine sampling. The sample (10 ml) is sent a laboratory in the normal way. If needed, the sample may be kept refrigerated for one or two days.
- As an alternative to first-void urine, women may give urethral and cervical swab samples which are then analysed by the same gene amplification methods. Even samples from the cornea of the eye can be examined by gene amplification techniques.
- Gene amplification is a rapid method, with results being available within as little as 24 h. In practice, large laboratories analyse samples two or three times a week.
- First-void urine samples are well suited for home screening of risk groups or sexual partners [6].
- **Chamydial culture** has been rendered secondary in importance for several reasons. It has a sensitivity of 80% but a specificity of close to 100% [5]. The sample for chlamydial culture is obtained with a special swab from the urethra or cervix. It should be transported to the laboratory without delay, and the result becomes available after two or three days. In chronic infections, the test is often negative because of low numbers of bacteria. Unlike gonorrhoea, chlamydial infections are not associated with resistance problems.
- **Serology**. Chlamydial serology may be useful in chronic infections. High IgG antibody titres are often present in pelvic infections and also in other complications. An isolated positive test indicates that the patient has a history of chlamydial infection.

Treatment of chlamydial infection

- Chlamydia trachomatis is sensitive to macrolides and tetracyclines. Clindamycin is also relatively effective against this species, fluoroquinolones less so. The common cephalosporins and penicillin have poor efficacy.
- **Azithromycin 1 g as a single dose** is the treatment of choice for chlamydial infection. Other alternatives are tetracycline 500 mg x3/day or doxycycline 100 mg x2/day for 7 - 10 days. Patients who are pregnant should receive erythromycin 500 mg x4/day for seven days (Level of Evidence=B; Evidence Summary available on the EBM Web site). Some 10% of patients get mild gastric side effects from azithromycin and tetracyclines. Azithromycin therapy has the benefit of 100% compliance; it is more expensive than the common tetracyclines, however. Controlled studies have shown similar therapeutic outcomes for these drugs, with 95 - 97% of patients being cured.
- Chlamydial infections of the throat, anus or eyes are treated with azithromycin for three to five days. For mild complications, patients are given tetracycline or doxycycline for two to three weeks, for reactive arthritis triggered by chlamydial infection even longer. In pelvic infections, combinations of antibiotics are used, as other bacteria, such as anaerobes, may be involved.
- The permanent sexual partner of the index patient should be tested before any treatment since the partner is not necessarily infected. The suitability of the antibiotic for the partner should also be ascertained, as well as ensuring that the female partner to be treated is not pregnant. Furthermore, the partner may have transmitted the infection to other persons, an issue that can only be clarified by having the partner visit the physician or clinic.

Post-treatment follow-up and tracing the contacts of the patient

- A follow-up visit should only take place after three to four weeks because the presence of gene

traces may produce a false positive result in an earlier re-test.
- Every physician treating patients with chlamydial infections is required to trace the sexual contacts of their patients (Level of Evidence=B; Evidence Summary available on the EBM Web site). The physician should enquire the index patient whether the person who is the source of the infection and any persons potentially infected have been tested for chlamydia and received treatment as needed. If desired, the attending physician may delegate the screening of sexual partners to a physician responsible for communicable diseases.

Screening for asymptomatic infections

- It has been shown that targeted screening for chlamydial infections is effective in preventing pelvic inflammatory disease (PID) and ectopic pregnancies [2] [3] [7].
- Screening for chlamydial infection is cost-effective if the prevalence of chlamydial infection exceeds 3% in the population screened[8]. Systematic screening for chlamydial infection has been considered relevant among family planning clinic customers and in general those young women who see their physician to renew their contraceptive pill prescription, especially if there is a history of temporary sexual partners.
- Tracing the contacts of the patient is the most effective way of combating the disease. Partner screening normally yields 20 - 30% positive cases. The practice of taking first-void urine samples from the partner at home has increased the number of detected infections by 50% compared with the usual practice of partner notification[6]. Many young people are unaware that chlamydial infection is often asymptomatic, which reduces and delays testing for chlamydia.
- Recent seroepidemiological studies have indicated an association between a history of chlamydial infection and the development of cervical carcinoma[9] [10]. The exact causal relationship remains to be determined, however. Therefore, no seroepidemiological screening programmes have been undertaken as yet.

Related evidence

- Patient assistance at facilitating patient referral and provider referral may increase partner notification for sexually transmitted diseases (Level of Evidence=C; Evidence Summary available on the EBM web site).
- Provider referral and contract referral are more effective than patient referral among patients in increasing the rate of partners presenting for medical evaluation (Level of Evidence=B; Evidence Summary available on the EBM web site).
- Amoxicillin and erythromycin are equallly effective for antenatal chlamydial cervicitis (Level of Evidence=B; Evidence Summary available on the EBM web site).

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Author(s): Timo Reunala, Urpo Kiistala
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